

CLAIMS

1. An expansion valve block for controlling or adjusting the pressure or the flow rate of a fluid,
5 comprising,
 - a main body within which at least one internal fluid passage between at least one fluid inlet orifice and at least one fluid outlet orifice is formed,
 - at least one fluid-pressure control means arranged on
10 at least part of said internal fluid passage, the internal fluid passage between said pressure control means and the fluid inlet orifice forming an upstream circuit and the internal fluid passage between said pressure control means and the fluid outlet orifice
 - 15 forming a downstream circuit,
 - at least one first fluid flow rate control means arranged on at least part of the downstream circuit,
 - at least one second fluid flow rate control means arranged on at least part of the upstream circuit,
- 20 - at least one command means for causing a fluid to flow in the passage,
characterized in that the command means collaborates with the first and second fluid flow rate control means in such a way that, when the operator commands delivery
25 of a fluid in the passage, the opening of the upstream circuit by the second control means occurs before the opening of the downstream circuit by the first control means and, when the operator commands the stopping of the delivery of a fluid in the passage, closure of the downstream circuit by the first control means occurs before closure of the upstream circuit by the second control means.
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- 35 2. The block as claimed in claim 1, characterized in that the second fluid flow rate control means arranged on at least part of the upstream circuit is a valve with an axially moving shutter.

3. The block as claimed in claim 1 or 2,
characterized in that the first fluid flow rate control
means arranged on at least part of the downstream
circuit is a cylinder right through which a duct is
5 radially pierced, said cylinder body of the block being
placed in a "hole" in the body.
4. The block as claimed in claims 2 or 3,
characterized in that one of the bases of the cylinder
10 is the axially moving shutter of the second fluid
control means arranged on at least part of the upstream
circuit.
5. The block as claimed in one of claims 2 to 4,
15 characterized in that the command means is a screw
collaborating with the cylinder/cylinder and the
shutter in such a way that turning it simultaneously
causes axial translational movement of the shutter and
axial rotation of the cylinder.
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6. The block as claimed in claims 4 or 5,
characterized in that the surface of the cylinder is
covered with a material which provides sealing between
the cylinder and the main body of the expansion valve
block.
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7. The block as claimed in one of claims 4 to 6,
characterized in that the base of the cylinder is
hollowed out around its annular periphery and in that a
30 seal is positioned in this annulus.
8. The block as claimed in one of the preceding
claims, characterized in that the pressure control
means comprises at least one shutter and/or at least
35 one spring.
9. The block as claimed in one of claims 1 to 7,
characterized in that the pressure control means
comprises a pressure relieving screw or a cam acting on

at least one shutter.

10. The block as claimed in one of the preceding
claims, characterized in that it comprises a moving
5 lever that can be manipulated by the operator between
at least one fluid flow rate open and at least one
fluid flow rate closed position, said lever acting on
the command means.
- 10 11. A pressurized-fluid vessel, particularly a gas
cylinder, equipped with an expansion valve block as
claimed in one of claims 1 to 10.
- 15 12. A method for delivering a fluid in an expansion
valve block, said expansion valve block comprising an
upstream circuit and a downstream circuit in which the
pressure is below the pressure in the upstream circuit,
characterized in that when the operator commands the
delivery of fluid, the opening of the upstream circuit
20 occurs before the opening of the downstream circuit.
- 25 13. A method for stopping delivery of a fluid in an
expansion valve block, said expansion valve block
comprising an upstream circuit and a downstream circuit
in which the pressure is below the pressure in the
upstream circuit, characterized in that when the
operator commands the stopping of the delivery of the
fluid, closure of the downstream circuit occurs before
closure of the upstream circuit.